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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,227	01/31/2005	Mario J. Nappa	CL2109USPCT	8038

7590 10/06/2005

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EXAMINER

PARSA, JAFAR F

ART UNIT PAPER NUMBER

1621

DATE MAILED: 10/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/523,227

Applicant(s)

NAPPA ET AL.

Examiner

Jafar Parsa

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— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 6/27/2005.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

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### DETAILED ACTION

1. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.
2. Claim 1 is objected to because of the following informalities: claim 1, line 3 "one one starting material" needs to be corrected to *one starting material*. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 1038858 A1 (Kanemura et al) in view of WO 98/10862 (Scott et al).

Applicants' claimed invention relates to a process for the preparation of pentafluoroethane, comprising: (a) contacting a mixture comprising hydrogen fluoride and at least one starting material selected from haloethanes of the formula  $CX_3CHX_2$  and haloethenes of the formula  $CX_2=CHX$ , where each X is independently selected from the group consisting of F and Cl provided that no more than four of X are F, with a fluorination catalyst in a reaction zone to produce a product mixture comprising HF, HCl, pentafluoroethane, underfluorinated halogenated hydrocarbon intermediates and less than 0.2 mole percent chloropentafluoroethane based on the total moles of halogenated hydrocarbons in the product mixture; wherein said fluorination catalyst comprises at least one chromium-containing component selected from (i) a crystalline cobalt-substituted alpha-chromium oxide where from about 0.05 atom % to about 6 atom % of the chromium atoms in the alpha-chromium oxide lattice are replaced by trivalent cobalt, and (ii) a fluorinated crystalline oxide of (i).

Kanemura teaches a method of preparing pentafluoroethane wherein chlorine-containing carbon compounds are fluorinated in the presence of fluorochromium oxide containing cobalt catalysts that are in an amorphous state and the average valence of the chromium in said chromium compounds is not less than +3.5 but not more than +5.0. And said chromium catalysts and a preparation method thereof. A method of preparing pentafluoroethane wherein the total yield of chlorofluoroethane by-products can be decreased without significantly deteriorating the generation activity of the pentafluoroethane and compounds which can be recycled in the reaction system. And

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to provide catalysts for this fluorination and a preparation method thereof (see abstract and page 9, lines 45).

Kanemura discloses that for preparing pentafluoroethane, it is preferable to fluorinate at least one of said chlorine-containing hydrocarbons selected from the group composed of perchloroethylene, 1,1-dichloro-2,2,2-trifluoroethane and 1-chloro-1,2,2,2-tetrafluoroethane by hydrogen fluoride. Further, it is desirable that said chlorine-containing carbon compounds are any of 1,1-dichloro-2,2,2-trifluoroethane (HCFC-123) and 1-chloro-1,2,2,2-tetrafluoroethane (HCFC-124) or their mixture (see page 5, paragraph 0041 and 0042).

Further, when fluorinating 1-chloro-1,2,2,2-tetrafluoroethane as said chlorine-containing carbon compound, the ratio of the total yield of chlorofluoroethane by-products to the yield of pentafluoroethane obtained can be fully controlled to not more than 0.3% (see page 5 paragraph 0052). The by-products can be recycled in the reaction system as the starting material (see paragraph 0005).

The difference between Kanemura and the claimed invention is that the chromium oxide catalyst disclosed by Kanemura is in an amorphous state, whereas the catalyst to be used in accordance with the present invention are said to be in crystalline state. However, WO98/10862 which discloses a chromium based fluorination catalyst which is at least partially crystalline and contain an additional element such as cobalt and nickel utilized for the preparation of fluorohydrocarbons (see page 7, lines 1-6 and page 8, lines 3-5). It would therefore, have been obvious to one of ordinary skill in the art at the time the invention was made to use crystalline form of the desired catalyst with

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the expectation that the total yield of chlorofluoroethane by-products can be decreased without significantly deteriorating the activity of pentafluoroethane catalyst disclosed by Kanemura et al.

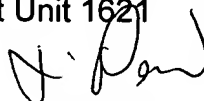
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jafar Parsa whose telephone number is (571)272-0643. The examiner can normally be reached on 8 a.m.-4:30 p.m. (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on (571)272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JP

Jafar Parsa  
Primary Examiner  
Art Unit 1621



**J. PARSA**  
**PRIMARY EXAMINER**